Medical Policy

Section | Original Policy Date | Last Review Status/Date
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OB/Gyn Reproduction | 12:2013 | Reviewed with literature search/12:2013

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Description

Twin-twin transfusion syndrome is a severe complication of monozygotic twinning. It is relatively common, occurring in 10%–15% of all monochorionic twins. It is often a lethal condition, accounting for 17% of perinatal deaths in twins overall. The pathophysiology of twin-twin transfusion syndrome is not fully understood, but the primary defect is thought to be abnormal placentation, characterized by a paucity of superficial anastomoses together with the presence of a solitary unidirectional deep arteriovenous anastomosis flowing from the donor twin to the recipient twin. The imbalance created by this or other vascular anastomotic configurations, sometimes combined with other placental abnormalities, leads to a circulatory disequilibrium. Prenatal management strategies are aimed at amelioration of polyhydramnios and/or at correction of the underlying vascular anomalies in the shared placenta. If progressive, twin-twin transfusion syndrome (TTTS) leads to polyhydramnios and eventually to cardiac dysfunction in the net “recipient” twin, and oligohydramnios or anhydramnios due to hypovolemic oliguria in the net “donor” twin, who is also often growth restricted and anemic.

Selection of treatment options for TTTS presenting before fetal viability is controversial. Most therapies have evolved only during the past 5 to 10 years and include expectant management, medical therapy (i.e., digoxin), delivery of the compromised twin, selective feticide, or septostomy. Outcomes from these options have been disappointing. Two treatments—serial amnioreduction and fetoscopic laser ablation of anastomotic vessels—are currently undergoing active investigation. Amnioreduction is a variant of amniocentesis in which amniotic fluid is removed to restore normal fluid volume. Fetoscopic laser therapy is designed to correct the underlying abnormality by separating the 2 fetal circulations. Refinements of laser therapy have focused on the selective ablation of those few arteriovenous anastomoses causing disease.
Specific anastomoses can be targeted using angiography, Doppler ultrasonography, or direct fetoscopic visualization.

Note: Other types of fetal surgery are addressed separately in policy No. 4.01.10.

Policy

Amnioreduction may be considered **medically necessary** as a treatment of twin-twin transfusion syndrome.

Laser coagulation therapy may be considered **medically necessary** as a treatment of twin-twin transfusion syndrome.

Amnioreduction in combination with laser coagulation therapy may be considered **medically necessary** as a treatment of twin-twin transfusion syndrome.

Policy Guidelines

In 2002, a new CPT code was introduced that specifically describes amnioreduction:

59001: Amniocentesis; therapeutic amniotic fluid reduction

**Laser Therapy**

Laser therapy may be preceded by either angiography or Doppler sonography to identify target vessels for laser therapy. There are no specific CPT codes for Doppler sonography or angiography of the placenta.

While amnioreduction is a variation of amniocentesis, a standard obstetrical procedure, laser therapy is a specialized procedure that may require out-of-network referral to a center specializing in the treatment of complications of multiple pregnancies.

Rationale
This policy is based on a 2000 TEC Assessment (1) that offered the following observations and conclusions:

- The primary evidence supporting amnioreduction with or without laser therapy consists of 15 uncontrolled case series that report consistent evidence of a survival advantage. There was an overall fetal survival of 54.8% among the 197 cases reported. This survival rate is similar to the 60% survival rate reported by the International Interim Amnioreduction Registry.

- The alternative to prenatal intervention is conservative management, which is associated with a fetal mortality rate of 90%–100%.

2004 Update

In April 2004, a literature search was conducted to identify new evidence about treatment of twin-twin transfusion syndrome. Although there are 3 randomized controlled trials currently in progress (2,3), no results have been reported from any of these trials. For example, 1 prospective randomized clinical trial sponsored by the National Institutes of Health (NIH) is comparing aggressive serial amnioreduction with selective fetoscopic laser photocoagulation. Studies conducted since the prior TEC Assessment report only on case series with outcomes similar to those reported in the TEC Assessment. However, complicating the assessment of these procedures is the improved outcomes of those managed conservatively. In a meta-analysis by Skupski et al. (4), there were no differences in outcomes between those treated by either amnioreduction or laser therapy and those treated conservatively. However, small numbers and lack of control for confounding variables do not allow for firm conclusions. For all surviving twins, morbidity remains high, dominated by neurologic cardiovascular and renal complications. For example, the incidence of cerebral palsy and global developmental delay in the surviving twins varies from 4% to 23%. (5)

References:

1. 2000 TEC Assessment, Tab 16

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